

REMARKS

This Amendment is in response to the Office Action dated June 22, 2004. In the Office Action, the Examiner rejected claims 1-6, 8-13, 15-25, and 27-29 under 35 U.S.C. § 102(b) as being anticipated by Ishii et al., U.S. Patent No. 5,835,761 (hereinafter *Ishii*).

No claim amendments are made herein. Thus, claims 1-29 remain pending in the application. For the reasons set forth below, the Applicants respectfully request reconsideration and allowance of all pending claims.

Claim Rejections - 35 U.S.C. § 102

A claim is anticipated only if each and every element of the claim is found in a single reference. M.P.E.P. § 2131 (citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628 (Fed. Cir. 1987)). "The identical invention must be shown in as complete detail as is contained in the claim." M.P.E.P. § 2131 (citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226 (Fed. Cir. 1989)).

In support of the rejection of claim 1, the Examiner asserts Ishii discloses:

writing updated firmware data that is to replace the original portion of platform firmware data to a firmware storage device (col. 3 lines 22-27);

and atomically modifying firmware configuration data to indicate the updated firmware data is to be used in place of the original portion of platform firmware data that is being updated such that only all of the original portion of platform firmware data are valid prior to the atomic modification of the firmware configuration data and only all of the updated firmware data are valid after the atomic modification to the firmware configuration data (col. 3 lines 22-55, col. 9 lines 30-67, and col. 10 lines 24-36).

Ishii discloses an information processing system capable of updating a BIOS programme without interrupting or stopping the operation of the system. Various embodiments for accomplishing this task are disclosed. However, each embodiment generally follows the same sequence. The updated BIOS programme is first written to a temporary storage area, which in the embodiment of Figure 5, for example is update program memory 48. Meanwhile, the original BIOS programme is stored in non-volatile

BIOS memory 45. During initialization operations, the original BIOS programme in BIOS memory 45 is written to shadow RAM in main memory 44, as was a common practice at the time the *Ishii* patent application was filed. After a multi-tasking operating system (OS) is loaded, the OS is used to enable an updated BIOS program stored on an external medium (e.g., flexible disc 53), device, or network) to be copied to a temporary store (e.g., update program memory 48 in Figure 5 or first common memory 67a in the embodiment of Figure 15) on information processing system 41. The original BIOS program (stored in BIOS memory 45) is then subsequently replaced with the updated BIOS program under management of the OS.

With respect to claim 1, this claim pertains to a “method for atomically updating an original portion of platform firmware data.” That is, the method enables part of an original set of platform firmware data (e.g., part, but not all of the BIOS) to be updated in an atomic manner. It is clear that *Ishii* updates the entire BIOS program.

As discussed in the Background of the Invention section of the present application, which discusses the prior art,

... Typically, the BIOS code will be stored as a *monolithic chunk* of code that gets replaced in its entirety by a new monolithic chunk of code. When the BIOS code is stored on a flash component, the memory blocks corresponding to the portions of memory that are to contain the new BIOS code must first be cleared (*i.e.*, reset to all 1's) prior to rewriting the memory. This clearing process wipes out the existing BIOS code. As a result, if a failure occurs in the middle of a rewrite or update, the BIOS code will be corrupt. (Last paragraph on page 3, emphasis added)

Updating an entire BIOS program is a moderately uncomplicated task. However, embodiments of the present invention claimed herein are used to atomically update one or more portions of the platform firmware. This is a much more complicated task.

More specifically, the portions of platform firmware may be stored in a single device, such as flash memory, or across multiple devices, using an Extensible Firmware Interface (EFI) that was developed by the assignee of the present application (Intel Corporation) and is now an industry standard. Details of EFI and associated firmware

storage schemes are generally discussed under the Extensible Firmware Interface and Firmware Volumes section (page 7) of the present application, as follows:

Recently, the Intel Corporation has introduced a new firmware paradigm that enables firmware storage to be extended beyond the traditional monolithic storage schemes found in the prior art. This is enabled, in part, by the Extensible Firmware Interface, or EFI. As its name indicates, the EFI enables firmware to be “extended” through use of a standardized software interface.

One means for extending firmware is facilitated by a standard software abstraction for a firmware storage device, known as a Firmware Volume (FV). Since the FV firmware storage abstraction is not tied to any specific type of hardware, it can be used to produce firmware components to the BIOS from almost any type of firmware device. For example, in a given system, one FV may represent a Flash Memory part, while another may represent a disk partition, while yet a third may represent a remote directory on a server. A single computer system may have one or more FV’s stored on one or more types of hardware.

The portions of the BIOS firmware code that are part of a FV are managed by a Firmware File System (FFS). The FFS enables one to manipulate firmware files that make up a FV. The FFS may be used for retrieving, creating, updating, and deleting firmware files. Generally, a FFS may be stored on any persistent memory device, including flash devices, disk partitions, and remote storage devices accessed via a network.

The method invention of independent claim 1 enables a portion of the platform firmware (e.g., one or more firmware files in a firmware volume) to be replaced in an atomic manner, wherein an original portion of firmware data is used prior to the atomic modification, and the updated portion of firmware data is used after the modification. This is clearly not taught or suggested by *Ishii*. At the time of filing the *Ishii* patent, EFI had yet to be invented (in fact, EFI wasn’t developed until several years later). Furthermore, there was no scheme for supporting an extensible firmware environment prior to EFI, to the best of the inventors’ knowledge. Clearly, such an environment is not disclosed by *Ishii*.

In summary, it is clear the *Ishii* does not teach each and every element of recited in independent claim 1, as required by a § 102 anticipation rejection. Accordingly, the

rejection of claim 1 as anticipated by *Ishii* is improper, and should be withdrawn.

Furthermore, applicants respectfully assert that a § 103 obvious rejection in view of *Ishii* alone, or in combination with and any other prior art cited in the Office Action would also not be supported for similar reasons presented above in support of the allowance of claim 1.

With respect to independent claim 9, the Examiner asserts that *Ishii* discloses all of the claim elements. Applicants respectfully disagree. Claim 9 recites:

9. A method for atomically updating a plurality of original platform firmware files, comprising:

creating a temporary file;

writing data corresponding to a plurality of updated platform firmware files comprising new versions of the plurality of original platform firmware files to the temporary file; and

atomically modifying *platform firmware file configuration information* to indicate that the updated platform firmware files are to be used in place of the original platform firmware files such that only all of the original platform firmware files or only all of the updated platform firmware files are valid at any point in time during an update process. (Emphasis added)

Clearly, *Ishii* does not disclose updating multiple platform firmware files. Rather, *Ishii* discloses updating a single file (the BIOS programme). *Ishii* also does not employ any platform firmware file configuration information for multiple platform firmware files. The only configuration information *Ishii* employs are flags corresponding to the state of the update of the entire BIOS programme. Accordingly, the rejection of independent claim 9 is improper, and should be withdrawn.

Independent claim 18 is a Beauregard claim (machine-readable medium) claiming software/firmware for performing the method of claim 1. Accordingly, claim 18 is patentable over the cited art for similar reasons presented above in support of

allowance of independent claim 1. Similarly, Independent claim 21 is a Beauregard claim claiming software/firmware for performing the method of claim 9. Accordingly, claim 21 is patentable over the cited art for similar reasons presented above in support of allowance of independent claim 9.

Overall, none of the references singly or in any motivated combination disclose, teach, or suggest what is recited in the independent claims. Thus, given the above amendments and accompanying remarks, independent claims 1, 9, 18, and 21 are now in condition for allowance. The dependent claims that depend directly or indirectly on these independent claims are likewise allowable based on at least the same reasons and based on the recitations contained in each dependent claim.

If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 292-8600.


Charge Deposit Account

Please charge our Deposit Account No. 02-2666 for any additional fee(s) that may be due in this matter, and please credit the same deposit account for any overpayment.

Respectfully submitted,

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